

### **Remarks/Arguments**

Claims 1-40 are pending.

Claims 8-38 stand withdrawn.

Claims 1-5, 7 and 39 stand rejected.

Claim 40 stands allowed.

Claim 6 stands objected to.

Claim 39 has been amended, without prejudice or disclaimer.

### **Restriction of Claims 8-38**

Applicant notes that the Examiner has made the requirement to restrict between the invention of Group I, claims 1-7, and the inventions of Groups II-IX, corresponding to claims 8-38, final. Applicant previously elected Group I, with traverse. Claims 8-38 have been withdrawn. Accordingly, no action is believed to be required of Applicant at this time with respect to the restriction requirement.

### **Rejection of Claim 39 Under 35 U.S.C. 112, second paragraph.**

Claim 39 stands rejected under 35 U.S.C. 112, second paragraph. The Examiner states that claim 39, which depends from claim 1, fails to further limit independent claim 1.

Claim 39 has been amended. The rejection is respectfully traversed. Claim 1 recites that the lamp is one of an arc lamp, incandescent lamp, and plasma lamp. Claim 39 further limits claim 1 by specifying that the lamp is one of a mercury, xenon, metal halide, and halogen arc lamp. Thus, claim 39 further limits claim 1 by specifying that the lamp is an arc lamp, and particularly one of a mercury arc lamp, xenon arc lamp, metal halide arc lamp, and halogen arc lamp. While claim 39 prior to amendment clearly limited claim 1, in order to advance prosecution, Applicant has amended claim 39 to further clarify that each of the recited lamps is an arc lamp.

Accordingly, claim 39 clearly further limits claim 1, and the rejection should be withdrawn.

Further, claim 39 depends from claim 1, which is allowable for the reasons set forth below. Accordingly, claim 39 is allowable at least by virtue of its dependence from an allowable base claim.

### **35 USC 103 Rejections**

Claims 1-5 stand rejected under 35 USC 103(a) as being unpatentable over Petroski (U.S. Patent No. 6,481,874). Claims 1-2, 4-5 and 7 stand rejected under 35 USC 103(a) as being unpatentable over Galli (US 2004/013892). Claim 3 stands rejected under 35 USC 103(a) as being unpatentable over Galli '892 in view of Petroski. These rejections are respectfully traversed, for the reasons set forth in detail below.

#### **Rejection of Claims 1-5 under 35 USC 103(a) over Petroski.**

The present invention is embodied in a handheld searchlight having a lamp for efficiently producing a high intensity beam of light comprising. The lamp that produces the high intensity beam of light is one of an arc lamp, incandescent lamp, and plasma lamp. The searchlight includes a printed circuit board having a first surface and a second surface opposite the first surface, and including circuitry to regulate and control power supplied to the lamp; a housing to contain the printed circuit board; and a heat sink mounted onto a portion of the first surface of the circuit board. The heat sink is also coupled to the housing to dissipate heat generated by the printed circuit board.

The above is broadly encompassed by present claim 1, which recites

A handheld searchlight having a lamp for efficiently producing a high intensity beam of light comprising: a printed circuit board having a first surface and a second surface opposite said first surface, and including circuitry to regulate and control power supplied to the lamp; a housing to contain the printed circuit board; and a heat sink mounted onto a portion of said first surface of said circuit board, coupled to the printed circuit board, the heat sink also coupled to the housing to dissipate heat generated by the printed circuit board,

wherein the lamp is one of an arc lamp, incandescent lamp, and plasma lamp. (emphasis added)

The standard for a *prima facie* case of obviousness is the following:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. . . . *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

MPEP §2142 (8<sup>th</sup> edition, rev. 2, 2004). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). MPEP 2143.03 (8<sup>th</sup> edition, rev. 2, 2004).

The rejection of claim 1 is traversed on the grounds that: (1) the modification of the Petroski reference proposed by the Examiner fails to meet at least the limitation "onto a portion"; and (2) there is no suggestion or motivation to modify the cited prior art, which provide heat dissipation structures to meet the specific heat generation qualities of LEDs, for use with the recited lamps.

In Petroski, the entirety of one surface of the PCB 26 is in contact with the conductive surface 20. The Examiner states, in Paragraph 5 of the Office Action, that "as broadly claimed Petroski clearly teaches applicant's claimed invention because the heat sink 20a is only MOUNTED on one surface of the circuit board 26." Applicant agrees that heat sink 20a is only mounted on one surface of the circuit board 26. However, claim 1 clearly recites a heat sink mounted onto a portion of one of two opposing surfaces of a printed circuit board. Thus, Petroski's teaching of a printed circuit board having one entire surface mounted to a heat sink is clearly not recited by claim 1. Accordingly, claim 1 is allowable.

The above notwithstanding, claim 1 is allowable for the independent and sufficient reason that there is no motivation to modify Petroski to provide a PCB in contact with a heat sink in a device having an arc lamp, incandescent lamp or plasma

lamp, because Petroski provides for a PCB mounted on a heat sink as a solution to a problem specific to LEDs. Petroski teaches that, in a device having an LED, a substantial amount of heat is dissipated through a cathode leg or through a die attached in a direct die mount device (col. 1, lines 23-32). By contrast, Petroski teaches that standard filament bulb flashlight systems dissipate heat by radiating a large percentage of heat to the front lens and a smaller amount to the interior of the flashlight (col. 1, lines 13-15). Petroski solves the problem of heat dissipation from the die by mounting LED 12 on die 14, which in turn is on PCB 26, and has an entire side secured to thermally conductive material 20. As Petroski teaches a lamp device specifically designed to provide heat dissipation for an LED, and indeed is entitled "Heat Dissipation System for High Power LED Lighting System," one of ordinary skill would not modify Petroski to a device that incorporates a lamp having entirely different heat dissipation characteristics. Indeed, even if one of ordinary skill did modify Petroski by substituting one of the claimed lamps for the LED, one of ordinary skill would not employ the configuration of circuit board and heat sink as taught, as the heat dissipation system that carries heat away from a die would be unnecessary. In short, Petroski provides no motivation to couple a heat sink to a PCB except together with an LED.

For the foregoing reasons, reconsideration and removal of the rejection of claim 1 over Petroski is respectfully requested. Claims 2-5 depend from claim 1, and removal of the rejection of claims 2-5 under 35 U.S.C. 103 is requested at least by virtue of the removal of such rejection of the base claim.

**Rejection of Claims 1-2, 4-5 and 7 under 35 USC 103(a) Over Galli (US 2004/013892).**

With regard to the rejection of claim 1 in view of Galli, there is similarly no motivation or suggestion to modify Galli to substitute one of the claimed lighting elements for the LED, as Galli, like Petroski, is specifically directed to a structure with a heat sink to dissipate heat generated by an LED. Galli recites, in Paragraph [0028], that most of the heat generated by an LED device is transmitted through contact leads. Galli solves the problem of dissipating the heat produced at the contact leads by placing receiver sleeve 20 in thermal contact with the leads, through contact 40. Accordingly, one of ordinary skill in the art would not modify Galli to provide the recited lamps, as

Galli incorporates a structure specifically configured to dissipate heat from the contact leads of an LED. Indeed, the title of Galli recites "Lighting Head Assembly With Integrated Heat Sink." One of ordinary skill in the art would not be motivated to modify Galli to use the recited lamps. Moreover, even if one of ordinary skill did modify Galli to replace the LED with one of the recited lamps, one of ordinary skill would clearly remove or modify the receiver sleeve 20, as there would be no reason to have a thermal conductor in contact with mounting board 38.

In view of the foregoing, reconsideration and removal of the 35 USC 103 rejection of claim 1 over Galli '982 is respectfully requested.

Claims 2, 4-5 and 7 depend ultimately from allowable Claim 1, and the rejection of those claims over Galli '892 should be withdrawn for at least the same reasons.

**Rejection of Claim 3 under 35 USC 103(a) over Galli '892 in view of Petroski.**

Claim 3 stands rejected under 35 USC 103(a) as being unpatentable over Galli '892 in view of Petroski. Claim 3 depends from Claim 1, and accordingly is allowable at least by virtue of its dependence from an allowable base claim.

In view of the foregoing, claims 1-5 and 7 are allowable.

**Allowable Subject Matter**

The allowance of claim 40, and the indication of allowable subject matter in claim 6, are gratefully acknowledged. As claim 1, from which claim 6 depends, is allowable for the reasons set forth above, claim 6 is also in condition for allowance.

## CONCLUSION

Wherefore, Applicant believes he has addressed all outstanding matters, and respectfully requests that claims 1-7 and 39-40 be allowed.

Should there be any questions or outstanding matters, the Examiner is cordially invited and requested to contact Applicant's undersigned attorney at his number listed below.

Respectfully submitted,



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